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White House Webinar: Building Community Preparedness to Extreme Heat

Douglas J. Casa, P.h.D., ATC, FACSM, FNATA
CEO, Korey Stringer Institute, University of Connecticut

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PREPARING ATHLETES, COACHES & PARENTS FOR EXTREME HEAT

The 8 Pillars of Preventing and Treating Exertional Heat Stoke

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PREVENTION

Hydration

- Maintain hydration prior to, during and post exercise
  - Will attenuate increases in body temperature during intense exercise
- For Every 1% loss in body mass, body temperature increases by 0.5°F
- To decrease risk of exertional heat stroke (EHS):
  - Minimize fluid losses during exercise
  - Fluid losses vary by individual, therefore rehydration plans should be specific for each athlete

Casa DJ et al. National Athletic Trainers' Position Statement: Exertional Heat Illnesses. *J Athl Train.* 2015;50(9):986-1000.

Body Cooling

- Attenuates body temperature rise
  - May be done before, during or post-exercise
- Many options available
  - Can be applied to most sports settings (i.e. equipment laden sports)
- A plan for cooling during rest breaks is imperative for equipment-laden athletes who are at great risk of EHS when exercising in the heat

Casa DJ et al. National Athletic Trainers' Position Statement: Exertional Heat Illnesses. *J Athl Train.* 2015;50(9):986-1000.

Work to Rest (W:R) Ratios

- Appropriate W:R ratios should be modified when:
  - Environmental conditions are extreme
  - Athlete gains or loses fitness
- Environmental extremes should be measured via Wet Bulb Globe Temperature (WBGT), accounts for:
  - Ambient Temperature
  - Relative Humidity
  - Radiation from the Sun
  - Wind
- Modifications for W:R ratios include increasing number of rest breaks, duration of breaks and unrestricted access to hydration

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Acclimatization

- Heat Acclimatization = Series of beneficial physiological adaptations to increase heat tolerance
  - Occurs over a period of 10-14 days
- To optimize adaptations, appropriate hydration is important
- Having a heat acclimatization protocol is one of the best ways to prevent EHS

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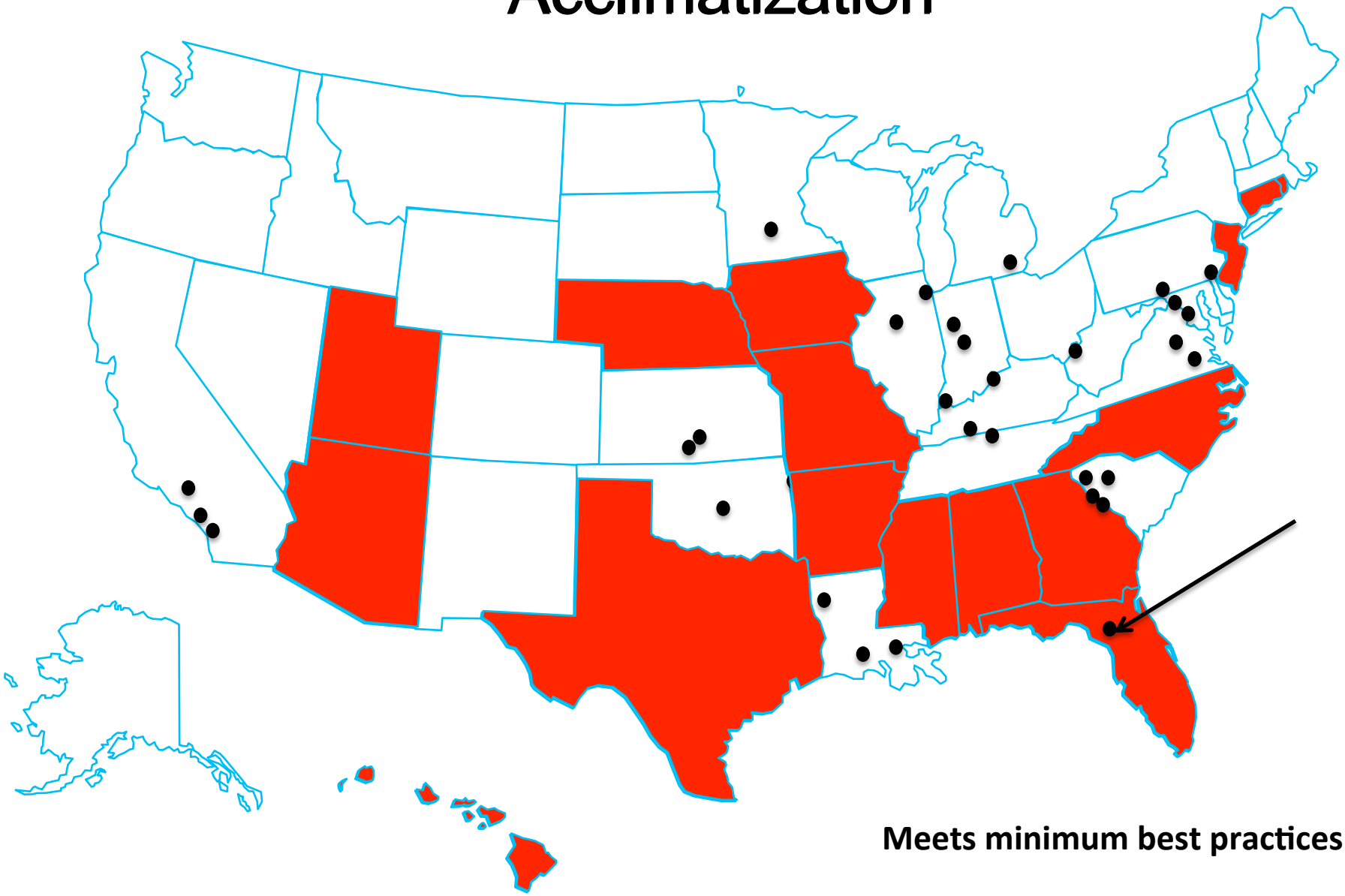
Preseason Heat-Acclimatization Guidelines

Area of Practice Modification	Practices 1-5		Practices 6-14
	Days 1-2	Days 3-5	
# of Practices Permitted Per Day	1		2, only every other day
Equipment	Helmets only	Helmets & Shoulder Pads	Full Equipment
Maximum Duration of Single Practice Session	3 hours		3 hours (a total maximum of 5 hours on double session days)
Permitted Walk Through Time (not included as practice time)	1 hour (but must be separated from practice for 3 continuous hours)		
Contact	No Contact	Contact only with blocking sleds/dummies	Full, 100% live contact drills

NOTE: warm-up, stretching, cool-down, conditioning, and weight-room activities are Included as part of practice time

Preseason Heat-Acclimatization Guidelines for Secondary School Athletics. Journal of Athletic Training. 2009;44(3):332-333.

EHS Definition of Acclimatization



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Education

- Athletes, coaches, parents, athletic trainers and other medical professionals should all be educated on EHS prevention strategies
- Having knowledge of symptoms of EHS will help ensure appropriate recognition & treatment is provided
- Improves chance of survival

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TREATMENT

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Recognition

- **EHS = body temperature >105°F + CNS dysfunction**
  - CNS dysfunction includes: dizziness, collapse, confusion, irritability, collapse etc
- EHS should be considered for any athlete with CNS dysfunction during intense exercise in the heat
- A rectal temperature is the only viable field option to assess body temperature for an exercising individual

Casa DJ et al. National Athletic Trainers' Position Statement: Exertional Heat Illnesses. *J Athl Train.* 2015;50(9):986-1000.

Treatment

- Cold-water immersion is the gold standard
- To ensure survival, cooling tub should be set up prior to any exercise in the heat
- Cool aggressively and immediately
  - Cool individual until they reach 102°F
  - Complete cooling within 30 minutes to maximize survival
- Cool **First**, Transport Second
  - Given available on-site equipment and medical professionals are available

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CWI Protocol

Field Based Treatment

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Return-to-Play

- Athlete who survives EHS, should be fully evaluated by a physician before return to activity
  - Must demonstrate ability to tolerate exercise in the heat
- Athlete likely had a predisposing factor at the time of the EHS, which should be identified and remediated
- Return should be gradual and medically monitored
- When cleared, return should start at low intensity, cool environment and slowly progress to high intensity in warm environment
- Progression should be slowed, halted or re-evaluated if athlete struggles or has complications

Casa DJ et al. National Athletic Trainers' Position Statement: Exertional Heat Illnesses. *J Athl Train.* 2015;50(9):986-1000.